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***Corresponding author**
Giovanni Di Guardo
E-mail
gdiguardo@unite.it
Phone
+39-347-6317862

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Extreme Weather Events and Scientific Research

Giovanni Di Guardo*

Past Professor of General Pathology and Veterinary Pathophysiology, University of Teramo, Veterinary Medical Faculty, Località Piano d'Accio, 64100-Teramo, Italy

Abstract

The catastrophic flood by which a huge area of Emilia-Romagna region (northern Italy) was affected last May is the most recent out of a long queue of extreme weather events involving the Italian territory throughout the last 13 years. When dealing with extreme weather phenomena, representing nowadays a "minimum common denominator" worldwide, global warming should be kept into a special account, given that the highest mean temperatures on Earth in the last 140 years have been recorded between 2015 and 2022. This implies that consistent financial investments are needed to adequately cope with extreme weather events in Italy as well as in many other countries, thereby adopting an *ad hoc* "mind and paradigm change" and through a multidisciplinary, basic and applied, "One Health"-inspired research effort. To this aim, we should firmly keep in mind that the money sums invested in "prevention" are exceedingly lower than those spent for the "therapy" of natural disasters.

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Dear Editor,

The devastating flood that last May affected a large area of the Emilia-Romagna region, northern Italy, brings to our attention, once again, the Italian territory's intrinsic fragility, similar to many other regions across the world's continents. Indeed, this is the last within a long list of catastrophic, extreme weather events, that have occurred in Italy throughout the last 13 years, thereby causing many fatalities among people as well as in domestic (farm and pet) and wild animal species. Within such a framework, the main driver of which appears to be climate change, special emphasis should be placed upon global warming, provided that the last 8 years (2015-2022) have been the hottest ones ever experienced by Mother Earth in the last 140 years [1].

An additional effect of major concern resulting from flooding is the land-to-sea transfer of a huge number of oro-fecally transmitted pathogens of viral, bacterial, fungal and protozoan nature impacting, at least potentially, the health and conservation status of free-ranging pinnipeds and cetaceans, with special emphasis on inshore or coastal species like bottlenose dolphins (Tursiops truncatus) [1]. This is the case, among others, of Toxoplasma gondii, a zoonotic and protozoan agent of global concern to dolphins and whales, whose conservation status appears to be increasingly threatened by human activities as well as by several anthropogenic and non-anthropogenic factors, often acting synergistically [2]. "How can we imagine to stay healthy in a sick world?", asked Pope Francis in a letter written three years ago to the President of Columbia for the World Environment Day, while the entire globe was dramatically affected by the COVID-19 pandemic, a clear-cut example of a climate change-driven pathogen spillover caused by the SARS-CoV-2 betacoronavirus [3]. While the catastrophic Emilia-Romagna's flooding event once again underscores the extremely urgent and no more postponable need to invest ad hoc money sums into what I would tentatively define as "an extreme weather event-related preparedness and readiness system", it should be additionally emphasized that Italy continues to invest since many, too many years slightly more than 1% of its "inner/internal domestic product" (IDP) in public research funding. Indeed, this appears to be inadmissible when compared with the average 2% of their IDP invested by European Union Countries. Ironically enough, however, the Italian research community ranks 8th on a global scale for the prestige and quality of scientific publications, with the aforementioned fully inadequate public research funding largely justifying the "brain drain" chronically affecting my Country for more than 50 years [4].

As a matter of fact, climate change, global warming and climate change-related health issues should be faced by adopting an "ad hoc mind and paradigm change" at the government and political levels. It should be given high importance through a multidisciplinary, transnational and transcontinental, basic and applied research effort, constantly inspired by the "One Health" concept/principle, reminding us that human, animal and environmental health are tightly and mutually linked to each other. Last but not least, it should be firmly kept in mind that the money sums invested in "prevention" are exceedingly lower than those spent for the "therapy" of natural disasters, as the devastating flood recently occurred in Emilia-Romagna is clearly showing us.

Errare Humanum est, Perseverare autem Diabolicum!

Conflict of interest

The authors declare no conflict of interest.

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